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A pilot study, students of psychology will have learned, is a preliminary study conducted before embarking on a full-scale research project. Pilot studies are useful for several reasons, one of which is that they can help researchers improve the design of a study before running a full version. One of my research mistakes was not doing a pilot before a large longitudinal study.

My colleagues and I have been interested in how children learn to spell (e.g., Treiman, 1993; Treiman & Kessler, 2014). Particularly interesting is a phase of development that children may go through when they are around 4 or 5 years old. During this period, children will try to write words when asked to do so, often using recognizable letters of the alphabet and stringing the letters along a line. However, the children's spellings don't make sense from the perspective of *phonology*: how the words sound. For example, one 4-year-old wrote *drop* as ⟨bninioc⟩ and *volcano* as ⟨bbi⟩. The letters this child used don't reflect the sounds in the words, and the child didn't even use more letters for *volcano*, which contains three syllables, than for *drop*, which contains one syllable. Such children are *prephonological spellers*. The spellings that they produce might appear to be random strings of letters that don't reveal any knowledge about spelling. But our research had shown that, as a group, prephonological spellers possess some knowledge about which letters and letter sequences tend to occur in words of their language and that they express this knowledge in their spelling attempts. This evidence came from studies in which preschool children were given paper and a pencil and were asked to write dictated real and made-up words (e.g., Pollo, Kessler, & Treiman, 2009). We identified the prephonological spellers and analyzed their productions, finding, for example, that the frequency with which these children used various two-letter sequences was related to the frequency with which these sequences occur in the words of their language.

Our next question was whether some prephonological spellers have more knowledge than others about what words look like. For example, one child might produce spellings that look rather like English words, such as ⟨fepiri⟩. Another child of the same age might produce less word-like letter strings, such as ⟨fpbczs⟩ or ⟨ccc⟩. Children like the former might be further along in learning to spell than children like the latter, already more knowledgeable about the letter sequences that occur in

the words of their language even if not more knowledgeable about how the letters symbolize sounds. If so, children like the former might be better spellers when tested several years later. This would be an exciting result, for it would suggest that the quality of a preschooler's spelling attempts can help to predict that child's success in learning to spell conventionally at school. Given the importance of identifying problems sooner rather than later, such a finding would have real educational value.

We thus embarked on a longitudinal study. Our plan was to test a large group of U.S. children when they were in preschool. We would ask the children to spell a set of words and to perform several other tasks that are known to predict later spelling performance. We would identify the prephonological spellers and follow them into kindergarten and first grade, assessing their spelling at these times. Our goal was to test the hypothesis that the quality of a child's early prephonological spellings can help predict later conventional spelling.

One question that we had to address was how children should produce their spellings in the preschool test. In our previous studies showing that prephonological spellers' attempts reveal a degree of knowledge about the letter patterns of their language, children wrote by hand on paper (e.g., Pollo et al., 2009). Having children write this way promotes ecological validity, because this is how children usually write. However, young children's fine motor skills are not very good. Writing by hand can take them a long time, and it is sometimes difficult to be sure which letters they meant to write. Asking children to say what letters they meant, as we did in our previous work, might be seen to detract from the naturalness of the task. We decided, therefore, to use a different task in the longitudinal study. We would give children a board on which plastic versions of all 26 letters of the alphabet were laid out randomly in rows. We would ask children to pick the letters needed to spell each dictated word and to arrange the letters on the tray in the right order. We had used a similar task in a previous study (Pollo, Kessler, & Treiman, 2005), but we hadn't systematically compared the handwriting task and the preformed letter task with the same group of children and the same items.

Longitudinal studies are difficult and time consuming, and our longitudinal study was especially so. In the United States, children in a preschool classroom typically disperse to a number of different schools for kindergarten. It was sometimes difficult to locate and test the children when they were in kindergarten and first grade. We tried as hard as we could, and we ended up with data from over 100 children. However, when we began serious analyses of the preschool spellings, we noticed that they were somewhat different from the ones we had collected in the handwriting task, the ones that revealed some knowledge about the letter patterns of the language in prephonological spellers. In the preformed letter task, children sometimes seemed to pick letters because of such things as their adjacency on the board. They didn't seem to think very hard about which letters to use, and they didn't show a strong tendency to use letters and letter sequences in proportion to their frequency of occurrence in

the language. Because of this, the data we had collected didn't provide as good a test of our hypothesis as we had hoped.

If we had conducted a pilot study, testing 20 or so preschoolers in both a handwriting task and a preformed letter task and balancing the order of the tasks across children, we would probably have noticed the problems with the preformed letter task and decided to use the handwriting task instead. But we didn't do such a pilot study. Because of our excitement and our desire to get moving, we jumped in to the full-scale study. The solution, in retrospect, is simple. Take the time to do a pilot study. You won't regret it.

REFERENCES

- Pollo, T. C., Kessler, B., & Treiman, R. (2005). Vowels, syllables, and letter names: Differences between young children's spelling in English and Portuguese. *Journal of Experimental Child Psychology*, *92*, 161–181. <http://doi.org/10.1016/j.jecp.2005.01.006>
- Pollo, T. C., Kessler, B., & Treiman, R. (2009). Statistical patterns in children's early writing. *Journal of Experimental Child Psychology*, *104*, 410–426. <http://doi.org/10.1016/j.jecp.2009.07.003>
- Treiman, R. (1993). *Beginning to spell: A study of first-grade children*. New York, NY: Oxford University Press.
- Treiman, R., & Kessler, B. (2014). *How children learn to write words*. New York, NY: Oxford University Press.

CRITICAL THINKING QUESTIONS

1. The essay focuses on one reason why pilot testing is valuable. Can you think of other reasons?
2. Why might a researcher not conduct a pilot test even when he or she knows it's a good idea to do so? Is it for the same reasons that people do other things that aren't good for them (e.g., overeat) and don't do things that are good (e.g., exercise)?
3. How might we assess a young child's knowledge about the spellings of words other than asking the child to write dictated words? What are the potential advantages and disadvantages of other methods?